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ABSTRACT

Rescue and medical workers may be at risk for negative emotional experience following intervention efforts in disaster situations. To examine this possibility, 120 rescue and hospital personnel responded to a survey of their emotional reactions and coping behaviors 3 months after a devastating tornado. Twenty-eight subjects had been involved in on-the-scene rescue; 92 worked in the hospital emergency department. Workers provided information on demographic characteristics, role during the disaster, initial thoughts and reactions, specific symptoms of adjustment difficulty following the tornado, support networks, and coping strategies after the tornado. Workers reported many of the symptoms of Posttraumatic Stress Disorder (PTSD), most frequently reporting repetitive intrusive thoughts. Workers at the tornado scene reported a mean of 6.59 PTSD symptoms and those at the hospital endorsed a mean of 7.33 symptoms. Most workers perceived neutral to supportive reactions from families, co-workers, and neighbors. Items endorsed on the Coping Inventory revealed reliance on cognitive coping strategies where the event was placed in perspective and cognitive mastery sought. Seeking social support was used more frequently than altering activities or finding new interests. The results clearly suggest a need for support services for hospital and rescue workers involved in disaster relief. (Author/NB)

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# Emotional Reactions of Rescue Workers Following A Tornado

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## Abstract

Three months following a devastating tornado, 120 rescue and hospital personnel responded to a survey of their emotional reactions and coping behaviors subsequent to the tornado. Workers reported many of the symptoms of Posttraumatic Stress Disorder (PTSD), most frequently reporting repetitive intrusive thoughts. Workers at the tornado scene reported a mean of 6.59 PTSD symptoms and those at the hospital endorsed a mean of 7.33 symptoms. Most workers perceived neutral to supportive reactions from families, co-workers and neighbors. Items endorsed on the Coping Inventory revealed reliance on cognitive coping strategies where the event was placed in perspective and cognitive mastery sought. Seeking social support was used more frequently than altering activities or finding new interests. The results clearly indicate a need for support services for hospital and rescue workers involved in disaster relief.

## Method

Subjects. 120 rescue, medical, and nursing professionals who had worked with victims of a tornado disaster three months earlier

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completed a series of questionnaires about their emotional, cognitive, and coping responses after the tornado. 28 subjects had been involved at-the-scene searching for victims, providing emergency care, or transporting victims to the hospital. 92 respondents encountered tornado victims at the hospital emergency department, in surgery, or worked with victims or their families in early post-disaster relief efforts. 89% of the respondents had worked at least 4 hours between 10 p.m. on the evening of the tornado and 6 a.m. the next morning.

Procedure. Questionnaires were sent to approximately 320 medical, nursing, or rescue professionals who had been involved in primary intervention efforts with tornado victims. All professionals responded to victims at the hospital or within the same county in which the hospital was located. 38% of the questionnaires were returned. The questionnaire addressed demographic characteristics of the respondent, particular role durling the disaster, initial thoughts and reactions during the disaster, identification of specific symptoms of adjustment difficulty following the tornado, support networks, and coping strategies after the tornado. The questionnaire was identical to one used in a previous study of rescue workers in the same county who had responded to victims of an apartment building explosion the year before the tornado (Durham, McCammon, & Allison, 1985).

## Results

PTSD Symptoms. Symptoms of posttraumatic stress reactions were assessed by questions adapted from Wilkinson's (1983) study of PTSD



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among victims of the Kansas City Hyatt Regency collapse in 1981. Percentages of rescue workers reporting the specific symptoms can be found in Table 1. Separate percentages are reported for those who worked at-the-scene and for those rendering help at the hospital. For each group, intrussive recollections of the event were the most reported symptom followed by reports of unusual sadness when contemplating the event. Of the 21 symptoms addressed, the mean number reported by at-the-scene workers was 6.59 (SD=2.68). Hospital-based workers showed a mean of 7.33 (SD=3.23) symptoms. This difference was not statistically significant. Workers who encountered a dead victim (n=50) reported more PTSD symptoms than did workers who did not treat a dead victim (n=47) [7.90 vs. 6.57, $t(95)=2.04$, $p<.05$]. Using the DSM-III (APA, 1980) criteria to diagnose a Posttraumatic Stress Disorder, 17% of the professionals would qualify for a PTSD diagnosis.

Support Networks. In rating the response of family members, coworkers, friends, and neighbors to their emotional needs following the disaster, rescue workers generally felt positive support from these sources. Family reactions were generally rated as more positive than were the ratings of level of support from the other sources. There was a significant correlation ($r=.31$, $p<.01$) between the sum of support ratings and PTSD symptoms--the more positive the response of the support networks, the fewer PTSD symptoms reported. A summary of ratings of support networks is listed in Table 2.

Coping Strategies. Using a rating of coping styles developed by Horowitz and Wilner (1980), the frequency of various coping

strategies and their reported effectiveness is found in Table 3. Cognitive strategies of "Thinking about the fact that you were providing help" (78%), "Reminding oneself that things could be worse" (68%), and "Trying to look at the situation realistically" (68%) were the most frequently reported coping strategies and were found to be highly effective if used (97%, 90%, and 92%, respectively). Action-oriented or mind-diverting strategies were much less frequently endorsed (less than 20% of respondents) and much less likely to be useful if reported. Additionally, the frequency of use of a coping behavior was positively correlated with its effectiveness ($r=.86$, $p<.01$).

## Discussion

The present data confirm that rescue and medical workers are at risk for negative emotional experiences following intervention efforts in disaster situations. Twenty subjects (17%) qualified for PTSD diagnoses using the DSM-III criteria and many others showed varying degrees of difficulty. Symptoms appeared aggravated if treatment of dead victims occurred and were also exacerbated when support networks were either unavailable or were viewed as unsupportive. Effective coping with the stress of responding in disaster situations clearly points to cognitive strategies in which the worker is able to achieve mastery of the situation. Data from the present study, when compared to those from rescue workers who responded to an apartment building explosion, a much more contained disaster with fewer casualties, indicate greater emotional distress (7 PTSD symptoms vs. 1.5). Although coping styles were similar

across these two events, tornado workers experienced a greater desire for emotional support and found it more difficult to put the event behind them. Hence, the magnitude of the disaster itself appears to be a crucial variable affecting adjustment.

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Table 1: Posttraumatic symptoms of rescue workers

| Symptom | Percentage Showing Symptom | |
|---|---|---|
| | On-the-scene (N=28) | At hospital (N=92) |
| Repeated Recollection of Event | 67 | 85 |
| Sadness | 63 | 60 |
| Frightening Dreams of the Event | 32 | 23 |
| Other Dreams of the Event | 22 | 22 |
| Depression | 19 | 22 |
| Loss of Enthusiasm | 19 | 19 |
| Guilt Feelings | 15 | 15 |
| Bothered by Publicity about Event | 15 | 15 |
| Trying not to Feel Deeply | 11 | 9 |
| Trouble recalling things | 11 | 0 |
| Sense that Event is Recurring | 11 | 30 |
| Loss of Interest in Things in General | 7 | 6 |
| Fatigue | 7 | 13 |
| Detachment from People | 4 | 4 |
| Startling Easily | 4 | 10 |
| Sleep disturbance | 4 | 9 |
| Awakening during the Night | 4 | 7 |
| Difficulty Concentrating | 4 | 4 |
| Avoiding activities that remind of Event | 4 | 4 |
| Loss of Appetite | 0 | 5 |
| Loss of Sexual Desire | 0 | 3 |

Table 2: "Following the Disaster, how did others react to your needs?"

| | Rating* | | | | | | |
|---|---|---|---|---|---|---|---|
| Support Network | 1 | 2 | 3 | 4 | 5 | Mean | SD |
| Family | 51% | 13% | 35% | 1% | 2% | 1.89 | 1.02 |
| Coworkers | 51 | 14 | 29 | 2 | 4 | 1.93 | 1.10 |
| Friends | 40 | 21 | 36 | 1 | 2 | 2.03 | 0.98 |
| Neighbors | 30 | 14 | 51 | 0 | 4 | 2.32 | 1.26 |

*1=Very supportive 2=Supportive 3=Neutral
4=Unsupportive 5=Very Unsupportive

Table 3: Frequency of coping behaviors and their usefulness

| Coping Behavior | Frequency of use (%) | Behavior Helpful if used (%) |
|---|---|---|
| Remind self of providing help | 78 | 97 |
| Remind self things could be worse | 68 | 90 |
| Look at situation realistically | 68 | 92 |
| Talk to others about incident | 64 | 96 |
| Be more helpful to others | 60 | 95 |
| Let self experience all feelings about event | 58 | 90 |
| Think about humorous parts of event | 56 | 85 |
| Think of meaning of life after event | 54 | 94 |
| Concentrate on other things | 52 | 84 |
| Put feelings out of mind | 45 | 72 |
| Think about good things in life | 45 | 87 |
| Figure out when responses were irrational | 42 | 78 |
| Seek out other workers dealing with same thing | 42 | 84 |
| Work on expectations for future | 39 | 86 |
| Not to withdraw from people | 37 | 82 |
| Think about event when alone | 34 | 85 |
| Develop positive attitude about event | 33 | 82 |
| Seek increased emotional support from others | 33 | 77 |
| Figure out how things would have differed if you had acted differently | 32 | 78 |
| Put whole thing out of mind | 32 | 66 |
| Figure out which things you feared really could have happened | 30 | 70 |

| | | |
|---|---|---|
| Figure out why disaster made you feel as it did | 28 | 74 |
| Devote self to work | 28 | 70 |
| Turn to religion or philosophy for help | 26 | 78 |
| Figure out meaning of being in rescue work | 23 | 74 |
| Involve self in other activities | 20 | 71 |
| Not be bothered by conflicting feelings | 19 | 65 |
| Look for someone to provide direction | 17 | 76 |
| Figure out choices in life and how they are related to event | 15 | 69 |
| Spend more time listening to music, writing, or getting into nature | 14 | 68 |
| Find new interests | 11 | 48 |
| Do things impulsively to see if they would help | 10 | 55 |